



भा.कृ.अनु.प.-राष्ट्रीय मत्स्य आनुवंशिक संसाधन ब्यूरो

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Name	Dr. Ravindra Kumar	
Designation	Principal Scientist, Genomics and Computational Resources Division	
Date of Birth	10 January, 1968	
Professional experience	>28 years	
Qualification (PG and above)	M.Sc. (ICAR-NDRI), Ph.D. (GBPUA&T)	
Link to Google Scholar Page	https://scholar.google.co.in/citations?user=npkmOOcAAAAJ&hl=en	
Current area of Research	• Molecular cytogenetics. • DNA/ genome sequencing. • Bioinformatics and Genomic Databases. • Fish cell line development and maintenance	
Area of Research Expertise	• Fish genomics • Bioinformatic analyses of genomic data • Population genetics • Molecular cytogenetics • Ecotoxicology and genotoxicity	
Awards/ Recognitions (only National and International)	• Nil	
Publication (no.)		
• Research papers	• 130	
• Reviews	• 3	
• Books	• 02	
• Book Chapters	• 15	
• Popular articles	• 14	
• Training Manual	• 5	
• Others	• CD/ Database: 02; Ph.D. students supervised: 07 • NAIP sponsored 3-months foreign training on 'Transgenic Animals (Fisheries)' at Institute of Molecular and Cell Biology (IMCB), A-STAR, Biopolis, Singapore.	

Important Research Publications

- Ali D, Nagpure N S, Kumar S, **Kumar R**, Kushwaha B (2008). Genotoxicity assessment of acute exposure of chlorpyrifos to freshwater fish *Channa punctatus* (Bloch) using micronucleus assay and alkaline single-cell gel electrophoresis. *Chemosphere*, 71: 1823-1831.
- Singh M, **Kumar R**, Nagpure N S, Kushwaha B, Gond I and Lakra W S (2009). Chromosomal localization of 18S and 5S rDNA using FISH in genus *Tor* (Pisces, Cyprinidae). *Genetica*, 137(3): 245-252.
- Mani I, **Kumar R**, Singh M, Kushwaha B, Nagpure N S, Srivastava P K, Murmu K, Rao D S K and Lakra W S (2009). Karyotypic diversity and evolution of seven Mahseer species (Pisces, Cyprinidae) from India. *Journal of Fish Biology* 75: 1079-1091.
- Singh M, **Kumar R**, Nagpure N S, Kushwaha B, Mani I, Lakra W. S. (2009). Extensive NOR site polymorphism in geographically isolated populations of Golden mahseer, *Tor putitora*. *Genome* 52(9): 783-789.
- Singh M, **Kumar R**, Nagpure N S, Kushwaha B, Mani I, Chauhan U K and Lakra W S (2009). Population distribution of 45S and 5S rDNA in golden Mahseer, *Tor putitora*: Population specific FISH marker. *Journal of Genetics*, 88(3): 315-20.
- Kumar R**, Nagpure N S, Kushwaha B, Srivastava S K and Lakra W S (2010). Investigation of the genotoxicity of Malathion to freshwater teleost fish *Channa punctatus* (Bloch) using micronucleus test and comet assay. *Archives of Environmental Contamination and Toxicology*, 58(1):123-30.
- Atindra Kumar Pandey, N. S. Nagpure, Sunil P. Trivedi, **Ravindra Kumar**, Basdeo Kushwaha (2011). Profenofos induced DNA damage in freshwater fish, *Channa punctatus* (Bloch) using alkaline single cell gel electrophoresis. *Mutation Research: Genetic Toxicology and Environmental Mutagenesis*. Dec 24, 726(2): 209-14.
- Pavan Kumar, **Ravindra Kumar**, N S Nagpure, B Kushwaha, P Nautiyal and A Dabas (2013). Genotoxicity and antioxidant enzyme activity induced by hexavalent chromium in *Cyprinus carpio* after *in vivo* exposure. *Drug and Chemical Toxicology*. October, 36(4): 451-60.
- Ravindra Kumar**, B Kushwaha and N S Nagpure (2013). Characterization and physical mapping of 18S and 5S ribosomal genes in Indian major carps (Pisces, Cyprinidae). *Micron*, 49: 40-45.
- Indra Mani, **Ravindra Kumar**, Mamta Singh, B Kushwaha, N S Nagpure, P K Srivastava and W S Lakra (2013). Chromosomal distribution of constitutive heterochromatin in eight species of mahseers (Family: Cyprinidae) from India. *Indian J Biotechnology*, 12: 178-186.
- C D Nwani, N S Nagpure, **Ravindra Kumar**, Basdeo Kushwaha and W S Lakra (2013). DNA damage and oxidative stress modulatory effects of glyphosate-based herbicide in freshwater fish, *Channa punctatus*. *Environmental Toxicology and Pharmacology*, 36(2): 539-547.
- Ravindra Kumar**, Mamta Singh, Basdeo Kushwaha, N S Nagpure, Indra Mani and WS Lakra (2013). Molecular characterization of major and minor rDNA repeats and genetic variability assessment in different species of mahseer found in North India. *Gene*, 527(1): 248-258.
- Ravindra Kumar**, Basdeo Kushwaha, Naresh S. Nagpure, Bijoy K. Behera and Wazir S. Lakra (2013). Karyological and molecular diversity in three freshwater species of the genus *Channa* (Teleostei, Perciformes) from India. *Caryologia: International Journal of Cytology, Cytosystematics and Cytogenetics*, 66: 2, 109-119.

- Goswami M, Yadav K, Dubey A, Sharma BS, Konwar R, **Kumar R**, Nagpure NS, Lakra WS (2014). *In vitro* cytotoxicity assessment of two heavy metal salts in a fish cell line (RF). *Drug and Chemical Toxicology*, 37(1): 48-54.
- Anurag Dabas, N S Nagpure, R M Mishra, Basdeo Kushwaha, **Ravindra Kumar** and Pavan Kumar (2014). Investigation of cadmium-induced genotoxicity and oxidative stress response in Indian major carp, *Labeo rohita*. *Human and Ecological Risk Assessment: An International Journal*, 20(2): 510-526.
- Christopher Didigwu Nwani, Naresh Sahebrao Nagpure, **Ravindra Kumar**, Basdeo Kushwaha, Pavan Kumar and Wazir Singh Lakra (2014). Induction of micronuclei and nuclear lesions in *Channa punctatus* following exposure to carbosulfan, glyphosate and atrazine. *Drug and Chemical Toxicology*, 37(4): 370-377.
- Pavan Kumar, **Ravindra Kumar**, Naresh Sahebrao Nagpure, Prakash Nautiyal, Basdeo Kushwaha, Christopher Didigwu Nwani and Wazir Singh Lakra (2015). *In vivo* assessment of DNA damage in *Cyprinus carpio* after exposure to potassium dichromate using RAPD. *Turkish Journal of Veterinary and Animal Sciences*. Jan.- Feb., 39(2): 121-127.
- AK Singh, **R Kumar**, M Singh, AK Mishra, U K Chauhan, VS Baisvar, R Verma, NS Nagpure and Basdeo Kushwaha (2015). Mitochondrial 16S rRNA gene based evolutionary divergence and molecular phylogeny of *Barilius* spp. *Mitochondrial DNA*. Feb., 26(1): 41-47.
- Naresh Sahebrao Nagpure, Rashmi Srivastava, **Ravindra Kumar**, Basdeo Kushwaha, Satish Kumar Srivastava, Pavan Kumar and Anurag Dabas (2015). Assessment of genotoxic and mutagenic potential of hexavalent chromium on the freshwater fish *Labeo rohita* (Hamilton, 1882). *Drug and Chemical Toxicology*, Jan., 38(1): 9-15.
- M Goswami, G Hariprasad, A Dubey, **R Kumar**, NS Nagpure, A Srinivasan, TP Singh and WS Lakra (2015). Proteomics analysis of liver tissue of *Labeo rohita*. *Current Proteomics*, 12(1): 56-62.
- Suyash Agarwal, Naresh Sahebrao Nagpure, Prachi Srivastava, Basdeo Kushwaha, **Ravindra Kumar**, Manmohan Pandey, Shreya Srivastava (2016). *In silico* genome wide mining of conserved and novel miRNAs in the brain and pineal gland of *Danio rerio* using small RNA sequencing data. *Genomics Data* 7: 46-53.
- NS Nagpure, Akhilesh K Mishra, A S Ninawe, Avinash Rasal, Akhilesh Dubey, Amit Kumar, M Goswami, **Ravindra Kumar*** and J K Jena (2016). Molecular and cytogenetic characterization of fish cell lines and its application in aquatic research. *Natl. Acad. Sci. Lett.* 39(1) (January-February 2016): 11-16.
- Nagpure NS, Pakthak AK, Pati R, Rashid I, Sharma J, Singh SP, Singh M, Sarkar UK, Kushwaha B, **Kumar R**, Murali S. (2016). Fish Karyome version 2.1: a chromosome database of fishes and other aquatic organisms. *Database*, 2016, 1-8, doi: 10.1093/database/baw012. *Database Update*.
- Iliyas Rashid, Naresh Sahebrao Nagpure, Prachi Srivastava, **Ravindra Kumar**, Ajey Kumar Pathak, Mahender Singh, Basdeo Kushwaha (2017). HRGFish: A database of hypoxia responsive genes in fishes. *Scientific Reports*, 7(13 February): 42346; DOI: 10.1038/srep42346; pp. 1-9.
- Srivastava Shreya, Kushwaha B, Prakash J, Pandey M, Agarwal S, **Kumar R**, Nagpure NS, Singh M, Das P, Joshi CG and Jena JK (2017). Identification and characterization of SSRs in *Clarias batrachus* and their application in population study. *Fisheries Science*, March, 83(2): 265-272.

- Manmohan Pandey, **Ravindra Kumar**, Prachi Srivastava, Suyash Agarwal, Shreya Srivastava, Naresh S Nagpure, Joy K Jena, and Basdeo Kushwaha (2017). WGSSAT: A high-throughput computational pipeline for mining and annotation of SSR markers from whole genomes. *Journal of Heredity*, Mar 16, 109(3): 339-343. Computer Note.
- Ilyas Rashid, VS Baisvar, M Singh, P Srivastava, **R Kumar***, B Kushwaha, AK Pathak (2019). Isolation and characterization of renowned hypoxia inducible gene connective tissue growth factor (CTGF) in *Labeo rohita*. *Molecular Biology Reports*, 46: 1683–1691.
- Rashid I, Pathak AK, **Kumar R***, Srivastava P, Singh M, Murali S, Kushwaha B (2019). Genome-wide comparative analysis of HIF binding sites in *Cyprinus carpio* for *in silico* identification of functional hypoxia response elements. *Front Genet: Bioinformatics & Computational Biology*, 16 Jul; 10: 659. doi: 10.3389/fgene.2019. 00659.
- Murali S*, AK Pathak, I Rashid, **R Kumar**, M Singh, B Kushwaha (2019). Genomic resources for fisheries research. *Fishing Chimes* (August), 39(5): 34-35.
- Ajeay Kumar Pathak, Ilyas Rashid, Naresh Sahebrao Nagpure, **Ravindra Kumar***, Rameshwar Pati, Mahender Singh, Murali S, Basdeo Kushwaha, Dinesh Kumar, Anil Rai (2019). FisOmics: A portal of fish genomic resources. *Genomics*, 111: 1923-1938 (November).
- Ilyas Rashid, VS Baisvar, M Singh, **R Kumar***, P Srivastava, B Kushwaha, AK Pathak (2020). Isolation and characterization of hypoxia inducible heme oxygenase 1 (HMOX1) gene in *Labeo rohita*. *Genomics*, May, 112(3): 2327-2333.
- Ravindra Kumar**, Vishwamitra Singh Baisvar, Basdeo Kushwaha*, Murali S., Vijay Kumar Singh (2020). Improved protocols for BAC insert DNA isolation, BAC end sequencing and FISH for construction of BAC based physical map of genes on the chromosomes. *Molecular Biology Reports*. 47: 2405–2413.
- Murali S, Basdeo Kushwaha*, Akhilesh Kumar Mishra, **Ravindra Kumar**, Kuldeep Kumar Lal (2019). National Repository of Fish Cell Lines: Accelerating fish cell line research in various field of fisheries and aquaculture. *Current Science* (News), 119(4): 589-590.
- Paramananda Das*, Lakshman Sahoo, Sofia P. Das, Amrita Bit, Chaitanya G. Joshi, Basdeo Kushwaha, Dinesh Kumar, Tejas M. Shah, Ankit T. Hinsu, Namrata Patel, Siddhi Patnaik, Suyash Agarwal, Manmohan Pandey, Shreya Srivastava, Prem Kumar Meher, Pallipuram Jayasankar, Prakash G. Koringa, Naresh S. Nagpure, **Ravindra Kumar**, Mahender Singh, Mir Asif Iquebal, Sarika Jaiswal, Neeraj Kumar, Mustafa Raza, Kanta Das Mahapatra, Joy Krushna Jena (2020). *De novo* assembly and genome-wide SNP discovery in rohu carp, *Labeo rohita*. *Frontiers in Genetics: Livestock Genomics*, 11: 386. doi:10.3389/fgene.2020.
- Manmohan Pandey, Basdeo Kushwaha, **Ravindra Kumar***, Prachi Srivastava, Suman Saroj, Mahender Singh (2020). *Evol2Circos*: A web-based tool for genome synteny and collinearity analysis and its visualization in fishes. *Journal of Heredity*, 111(5): 486–490.
- Basdeo Kushwaha*, Manmohan Pandey, P Das, CG Joshi, NS Nagpure, **Ravindra Kumar***, D Kumar et al. (2021). The genome of walking catfish *Clarias magur* (Hamilton, 1822) unveils the genetic basis that may have facilitated the development of environmental and terrestrial adaptation systems in air-breathing catfishes. *DNA Research*, 28(1): 1-16, February, dsaa031, <https://doi.org/10.1093/dnares/dsaa031>
- Kumar MS, Baisvar VS, Kushwaha B, **Kumar Ravindra***, Singh M, Mishra AK. (2022). Thermal stress induces expression of Nuclear protein and Parkin genes in endangered catfish, *Clarias magur*. *Gene*. 825: 146388. doi: 10.1016/j.gene.2022.146388.

- Baisvar VS, Kushwaha B, **Kumar Ravindra***, Kumar MS, Singh M, Rai A, Sarkar UK. (2023). BAC-FISH based physical map of endangered catfish *Clarias magur* for chromosome cataloguing and gene isolation through positional cloning. *International Journal of Molecular Sciences*. 23(24): 15958. <https://doi.org/10.3390/ijms232415958>.
- Kushwaha B, Srivastava N, Kumar MS, Kumar Ravindra. (2023). Protein-protein networks analysis of differentially expressed genes unveils the key phenomenon of biological process with respect to reproduction in endangered catfish, *C. magur*. *Gene*. 860: 147235. doi:10.1016/j.gene.2023.147235.
- Kushwaha B, Nagpure NS, Srivastava S, Pandey M, **Kumar Ravindra***, Raizada S, Agarwal S, Singh M, Basheer VS, Kumar RG, Das P, Das SP, Patnaik S, Bit A, Srivastava SK, Vishwakarma AL, Joshi CG, Kumar D, Jena JK. (2023). Genome size estimation and its associations with body length, chromosome number and evolution in teleost fishes. *Gene*. 864: 147294. doi:10.1016/j.gene.2023.147294.